AIWA® DATE OF ISSUE 3/1985 SERVICE MANU

STEREO PREAMPLIFIER

MODEL NO.

3X-120



STEREO POWER AMPLIFIER

MODEL NO.

(-120



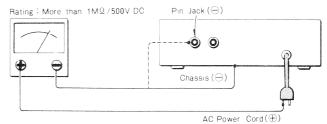
TYPE. HB, UB, EB, KB, ZB

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of serivce.

- a.c. primary circuit including mains leads.
- 2 No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
- 3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached
- 4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
 - * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
 - * e.g.; For UL models, lead-wires to be used shall be ap- 6. General instructions for mechanism repair proved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
 - * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.

1. No scratch and melting shall be made to covered lead-wires of an 5. After repaired, the insulation resistance or leakage current shall be measured with 500 \pm 5V D.C and shall be not less than 1M Ω . Measuring Point

Connect to Chassis or Outside ⊖ of Pin Jack



- 1) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. - No re-utilization due to unreliability.
- 2) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, mulfunction and damage.

SPECIFICATIONS

GX-120

Total harmonic

distortion: TUNER, AUX, TAPE PLAY, CD

0.02% (1 kHz)

PHONO (MM)

0.01% (1 kHz, REC OUT)

Frequency response:

30 Hz to 50 kHz (+0.5/-3 dB)

S/N ratio:

IHF A curve short circuited

GX-120E, H, K, G, U PHONO (MM)

80 dB TUNER, AUX, TAPE 83 dB

GX-120Z

PHONO (MM)

76 dB TUNER, AUX, TAPE 83 dB

Input jacks (Sensitivity/input impedance):

PHONO (MM)

3 mV/47k ohms

TUNER

150 mV/47k ohms

CD

320 mV/27k ohms

TAPE

150 mV/47k ohms

AUX

150 mV/47k ohms

MIC

1 mV/10 kOhm

Output jacks (Level/output impedance):

TAPE: 130 mV/47k ohms

(REC OUT)

OUTPUT: 1 V/47k ohms $\pm 0.5 dB (20 Hz \sim 20 kHz)$

RIAA deviation:

notice,

Design and specifications are subject to change without

BX-120

Effective output power: BX-120H

100W+100W (10%, 8 ohms)

BX-120G, E, K, Z

75W+75W (0.009%, 1 kHz,

8 ohms)

<FTC Rule U mode only> 75 Watts per channel, Min. RMS at 8 ohms, from 20 Hz-20 kHz, with no more than 0.02% Total Harmonic

Distortion.

Total harmonic distortion:

0.01% (50W+50W. 20 Hz-20 kHz, 8 ohms)

Frequency response: S/N ratio:

10 Hz to 50 kHz (-1 dB) IHF 110 dB, A curve short

circuited

Input jacks (Sensitivity/

input impedance): BX-120H

1V/47k ohms BX-120G, E, K, Z, U 800 mV/47k ohms

Output jacks (Level/

output impedance): Headphones 1 mW/1 W (8Ω)

Speakers (A or B) 8 to

16 ohms

Damping Factor:

Speakers (A+B) 16 ohms More than 30 (8 ohms, 1 kHz)

Power requirements:

BX-120U AC 120V, 60 Hz

BX-120G, K

AC 240V, 50/60 Hz

BX-120H

AC 120V/220V/240V switchable, 50/60 Hz

BX-120E, Z

AC 220V, 50/60 Hz

Power consumption: BX-120G, E, K, Z

350 W

BX-120U 100 W BX-120H

118 W Dimensions: 300 (W) \times 71 (H) \times 200 (D) mm 4.5 kg

Weight:

Design and specifications are subject to change without notice,

ECTRICAL MAIN PARTS LIST (GX-120)

 +++ mark denotes a component of assembled part which part code is represented by a previously stated component. CAPACITORS No mark, U, UF: μ F COILS MMH: mH

FUSE MMA:mA

ELECTRICAL MAIN

					tems and availabilities may be limited.	P, PF		: μH	WATER					
lef. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.		Description	Ref. No.	Part No.	Description	Ref. No.	Part No.
=== 10 :	87-020-291 87-027-350	IC,BA3812L IC,IR2406G	D22 D23 D24 D25	87-027-606 87-020-401	DIODE,1SS176 DIODE,ZENER HZ7C2L DIODE,1SS176 DIODE,1SS176	C171 C172	* 87-018-032 * 87-015-679 * 87-015-679 * 87-015-698	CAP, ELECT, 33-	-10 -10		87-034-708 * 87-085-139	AC CORD (E) (E,Z ONLY) AC CORD (K) (K ONLY) AC CORD BUSHING D (H,U ONLY) AC CORD BUSHING (E,K,Z ONLY)	=== IC	87-020-431 IC (4) 87-027-298 IC
	87-027-895 87-027-925 87-020-145	IC,M5218L IC,M5220	D26 D27 D28	87-020-401 87-020-401	DIODE,1SS176 DIODE,1SS176 DIODE,1SS176	C174 C175	* 87-015-698 * 87-015-691 * 87-015-692	CAP,ELECT 4.	7–50 1–50	⚠ SW22 ⚠ T1 ⚠ T1	87-031-685 81-739-641	ROTARY SW (VOLTAGE SELECTOR) (H ONLY) TRANSFORMER P.T (H) (H ONLY) TRANSFORMER P.T (U) (U ONLY)	·	87-027-895 IC 87-027-895 IC
	87-020-379 87-027 - 986		D29 D30	87-027-555 87-020-401	DIODE, ZENER HZ5C2 DIODE, 1SS176		* 87-015-692 * 87-027-889 * 87-027-889	CAP,ELECT 0.:	22-50V (TAPE)	ΔT1 ΔT1	81-731-608	TRANSFORMER P.T (E) (E,Z ONLY) TRANSFORMER P.T (K) (K ONLY)		87-027-986 10 87-020-162 10 (§) 87-020-207 10 (§) 87-027-656 10
Ğ		IC,TC4051BP IC,TC4066BP IC,TC9152P	D32 D33 D35	87-020-401 87-020-401	DIODE,1SS176 DIODE,1SS176 DIODE,1SS176	D36 D37	* 87-027-889 * 87-027-889	LED LN342GP LED LN342GP	(AUX) (PHONO)					87-027 - 787 IC
=== TRAN	NSISTOR === 89-110-155	TRANSISTOR, 2SA1015, GR	D36 D37 D38 D39	87-020-401 87-020-401	DIODE,ZENER RD2.2EB DIODE,1SS176 DIODE,1SS176 DIODE,1SS176	D38 D40 D41 D42	* 87-027-889 * 87-020-393 * 87-020-393 * 87-020-393	LED, TLR-206R	PH (MUTE) PH (DSL)				=== TRA	* 89-503-890 FE 89-110-155 TR 89-110-203 TR
	89-318-155 89-320-011	TRANSISTOR, 2SB1067 TRANSISTOR, 2SC1815, GR TRANSISTOR, 2SC2001K	D40 D41 D42 D43	87-020-401 87-020-401	DIODE,ZENER RD-6.2EB DIODE,1SS176 DIODE,1SS176 DIODE,1SS176	D43 D44 D45 D46	87-020-401 87-020-401 87-020-401 87-020-401	DIODE, 1SS176						89-111-246 TR 89-206-882 TR 89-318-155 TR
=== MAIN	89-408-804	TRANSISTOR,2SC945L,P TRANSISTOR,2SD880,Y ARD SECTION ===	D45 D51 D65	87-020-401 87-027-475 87-020-401	DIODE,1SS176 DIODE,ZENER HZ-6B1 DIODE,1SS176	D47 D80 D81 D82	* 87-020-399 * 87-020-399	LED, LN350GPH	(VOLUME LEVEL) (VOLUME LEVEL) (VOLUME LEVEL)					89-318-154 TR 89-320-011 TR 89-326-326 TR 89-326-553 TR
PCB-A C3 C4	* * 87-018-036 * 87-018-036	MAIN CIRCUIT BOARD CAP,CERA-SOL S 220P CAP,CERA-SOL S 220P	D66 D67 D68 D69	87-027-475 87-020-401 87-020-401	DIODE, ZENER HZ7C2L DIODE, ZENER HZ-6B1 DIODE, 1SS176 DIODE, 1SS176	D83 D84 D85	* 87-020-399 * 87-020-399 * 87-020-399	LED,LN350GPH LED,LN350GPH LED,LN350GPH	(VOLUME LEVEL) (VOLUME LEVEL) (VOLUME LEVEL)					89-333-810 TR 89-407-182 TR 89-412-753 TR
C8 7 C53 7	* 87-018-024 * 87-018-044	CAP,CERA-SOL S 47P CAP,CERA-SOL S 47P CAP,CERA-SOL S 1000P CAP,CERA-SOL 180P	D70 D71 D72	87-020-401 87-027-431 87-020-400	DIODE,1SS176 DIODE,ZENER RD-6.2EB DIODE,1SR35-200	D86 D87 D88 D89	* 87-020-399 * 87-020-399	LED,LN350GPH LED,LN350GPH	(VOLUME LEVEL) (VOLUME LEVEL) (VOLUME LEVEL)				=== MAI	89-413-023 TR.
C64 C71 C73	* 87-018-035 * 87-018-044 * 87-018-042	CAP,CERA-SOL 180P CAP,CERA-SOL S 1000P CAP,CERA-SOL S 680P	D73 D74 J1 J2	87-027-393 * 87-049-450	DIODE, 184841 DIODE, ZENER HZ4C2 PIN JACK, 4P (PHONO) PIN JACK, 4P (CD)	SW15 SW16	87-031-897 87-031-771 87-031-771	PUSH SW, SEA TACT SW EVQ-Q TACT SW EVQ-Q	(POWER STANDBY/ON) OSKO4M (VOLUME-UP) OSKO4M (VOLUME-DOWN)				C93	* MA * 87-018-131 CAF * 87-015-450 CAF * 87-010-276 CAF
C202 *	87-012-110 87-018-115	CAP, BEAD 270P (Z ONLY) CAP, BEAD 270P (Z ONLY) CAP, CERA-SOL 47P (Z ONLY)	J3 * J4	* 87-049-420 +++ 81-739-630	PIN JACK 4P-14 (AUX) PIN JACK 4P-14 (REC OUT) JACK, ASSY (PLAYER SYNC)	SW17 SW18 SW19	87-031-771 87-031-771	TACT SW EVQ-C	SKO4M (PHONO) SKO4M (TUNER)				C172 C173 C174	* 87-010-275 CAF * 87-010-276 CAF * 87-010-275 CAF
C205 *	87-018-121 87-018-121	CAP, CERA-SOL 47P (Z ONLY) CAP, CERA-SOL 150P (Z ONLY) CAP, CERA-SOL 150P (Z ONLY) CAP, CERA-SOL 150P (Z ONLY)	J6 J7 J8	+++	JACK, ASSY (REC/PLAY) JACK, ASSY (CONTROL) JACK, ASSY (TUNER)	SW20 - SW21 VR15 VR16	87-031-771 87-021-898	TACT SW EVQ-Q TACT SW EVQ-Q SLIDE VOLUME	SKO4M (CD)				C201 D25	* 89-663-815 CAF * 87-010-035 CAF 87-020-110 DIG
C208 * C209 *	87-018-121 87-018-121	CAP, CERA-SOL 150P (Z ONLY) CAP, CERA-SOL 150P (Z ONLY) CAP, CERA-SOL 150P (Z ONLY)	J9 J10 J11 J12	+++ +++ +++ 82-137-609	JACK, ASSY (CD SYNC) JACK, ASSY (VIDEO SYNC) JACK, ASSY (OUTPUT) 13P SOCKET (REMOTE CONTROL)	VR17 VR18 VR19	87-021-898 87-021-898	SLIDE VOLUME SLIDE VOLUME	100KB (125HZ) 100KB (330HZ) 100KB (1KHZ) 100KB (2.5KHZ)				D26 D30 D31 D32	87-020-110 DIG 87-027-369 DIG 87-020-110 DIG 87-020-110 DIG
D1 D2 D3 D5	87-020-401 87-027-225	D10DE,1SS176 D10DE,1SS176 D10DE,ZENER 05Z-5.1L(TP) D10DE,1SS176	J13 SW1 SW2 SW5	81-739-640 +++	JACK 6.3 (HP) (MIX MIC) PUSH SW 3 (REC OUT) PUSH SW 3 (MUTE) PUSH SW 3 (DSL)	VR20 VR21			100KB (6.3KHZ) 100KB (15KHZ)				D32 D33 D34	87-020-110 DIG 87-020-400 DIG 87-020-400 DIG
D6 D7 D8	87-020-401 87-020-401 87-020-401	DIODE,1SS176 DIODE,1SS176 DIODE,1SS176	VR1 VR2	87-021-922	VOLUME 50KW (BALANCE) VOLUME 10KB (MIC VOLUME)	PCB−C ⚠CR1	* 87-019-110	POWER CIRCUIT SPARK KILLER	BOARD 0.01 D				D49 D51 D52	87-027-788 DIG 87-020-400 DIG 87-020-400 DIG
D9 D10 D11 D12	87-020-401 87-020-401	DIODE,1SS176 DIODE,1SS176 DIODE,1SS176 DIODE,1SS176	PCB-B	81-740-620	ARD SECTION === FRONT CIRCUIT BOARD	∆ J15	87-035-139 * 87-049-017 * +++ * 87-049-416	AC OUTLET (H, AC OUTLET (H,	U ONLY) U ONLY)				D53 D54 D55 D56	87-020-110 D10 87-020-110 D10 87-027-097 D10 87-027-555 D10
D13 D14 D15	87-020-401 87-020-401	DIODE,1SS176 DIODE,1SS176 DIODE,1SS176 DIODE,1SS176	C142 * C145 *	87-015-696 87-015-431	CAP,ELECT 2.2-50 CAP,ELECT 2.2-50 CAP,AL 0.68-25 CAP,AL 0.68-25	ДJ15 ДJ14	* +++ * 87-049-514	AC OUTLET (K	ONLY) Z ONLY)				D57 D58 D59 D60	87-027-686 DIG 87-020-110 DIG 87-020-110 DIG 87-020-110 DIG
D16 D17 D18	87-020-401 87-020-401	DIODE,1SS176 DIODE,1SS176 DIODE,ZENER HZ4C2	C155 * C156 *	87-018-040 87-018-040	CAP,CERA-SOL S 470P CAP,CERA-SOL S 470P CAP,CERA-SOL S 220P	447.7							D61 D62 D63	87-020-110 DIG 87-020-110 DIG 87-020-110 DIG 87-020-110 DIG
D19 D20 D21	87-027-555	DIODE,1SS176 DIODE,ZENER HZ5C2 DIODE,1SS176	C161 * C162 *	87-015-698 87-015-698	CAP,CERA-SOL S 220P CAP,ELECT 4.7-50 CAP,ELECT 4.7-50 CAP,CERA-SOL S 100P	=== MIS		AC CORD (H) (AC CORD (U) (· · · - · · - ·				D64 J1 J3	87-027-479 DIG 81-738-630 JAG +++ JAG

S/M Code No. 85-011 1/4

+++ mark denotes a component of assembled part which part code is represented by a previously stated component.

CAPACITORS No mark, U, UF: μ F

COILS MMH: mH UH : #H FUSE MMA:mA **ELECTRICAL MAIN PARTS LIST (BX-120)**

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
D22 D23		DIODE,1SS176 DIODE,ZENER HZ7C2L			CAP,CERA-SOL S 100P CAP,ELECT,33-10	A		AC CORD (E) (E,Z ONLY) AC CORD (K) (K ONLY)	=== 1C	222	
D24 D25	87-020-401	DIODE, 1SS176 DIODE, 1SS176	C172	* 87-015-679	CAP,ELECT,33-10 CAP,ELECT 4.7-50	∆\ ∆ ∆	* 87-085-139	AC CORD BUSHING D (H,U ONLY) AC CORD BUSHING (E,K,Z ONLY)		87-020-431 ② 87-027-298	IC,BA658 IC,C-MOS4001 NOR
D26		DIODE,1SS176	C174	* 87-015-698	CAP,ELECT 4.7-50	S₩22		ROTARY SW (VOLTAGE SELECTOR) (H ONLY)		87-020-429 87-027-895	
D27 D28	87-020-401	DIODE, 1SS176 DIODE, 1SS176	C177	* 87~015~692	CAP, ELECT 0.1-50 CAP, ELECT 0.22-50V	<u>本</u> T1 本T1	81-731-607	TRANSFORMER P.T (H) (H ONLY) TRANSFORMER P.T (U) (U ONLY) TRANSFORMER P.T (E) (E,Z ONLY)		87-027-986	
D29 D30		DIODE, ZENER HZ5C2 DIODE, 1SS176	C178 D34		CAP,ELECT 0.22-50V LED LN342GP (TAPE)	Δ τι		TRANSFORMER P.T (K) (K ONLY)		\$7-020-162 9 87-020-207 9 87-027-656	
D32 D33	87-020-401	DIODE,1SS176 DIODE,1SS176	D35	* 87-027-889	LED LN342GP (TUNER) LED LN342GP (AUX)	257	01 751 002	TOWNS ON EXTENSION AND AND AND AND AND AND AND AND AND AN			IC,UPC1237H
D35		DIODE,1SS176			LED LN342GP (PHONO)					0. 02. 70.	10,01.01.20711
D36 D37		DIODE,ZENER RD2.2EB DIODE,1SS176	D38 D40	* 87-020-393	LED LN342GP (CD) LED,TLR-206RPH (MUTE)				=== TR/	ANSISTOR ===	
D38 D39		DIODE,1SS176 DIODE,1SS176	D41 D42		LED,TLR-206RPH (DSL) LED,TLR-206RPH (GE)					* 89-503-890 89-110-155	FET 2SK389 TRANSISTOR,2SA1015,GR
D40	87-027-431	DIODE,ZENER RD-6.2EB	D43		DIODE,188176						TRANSISTOR, 2SA1020,0 (EXCEPT H TRANSISTOR, 2SA1124, R
D41 D42	87-020-401	DIODE,1SS176 DIODE,1SS176	D44 D45	87-020-401	DIODE,1SS176 DIODE,1SS176						TRANSISTOR, 2SB688 (EXCEPT H)
D43		DIODE,1SS176	D46		DIODE,188176					89-318-154	TRANSISTOR, 2SC1815, GR TRANSISTOR, 2SC1815, Y
D45 D51	87-027-475	DIODE,1SS176 DIODE,ZENER HZ-6B1	D47 D80	* 87-020-399	DIODE,1SS176 LED,LN350GPH (VOLUME LEVEL) LED,LN350GPH (VOLUME LEVEL)						TRANSISTOR, 2SC2001K
D65 D66		DIODE,1SS176 DIODE,ZENER HZ7C2L	D81 D82	* 87-020-399 * 87-020-399	LED, LN350GPH (VOLUME LEVEL)					89-326-553	TRANSISTOR, 2SC2632, R TRANSISTOR, 2SC2655(0) (EXCEPT TRANSISTOR, 2SC3381
D67 D68		DIODE, ZENER HZ-681 DIODE, 1SS176	D83 D84		LED,LN350GPH (VOLUME LEVEL) LED,LN350GPH (VOLUME LEVEL)						TRANSISTOR, 2SD718 (EXCEPT H)
D69 D70	87-020-401	DIODE,1SS176 DIODE,1SS176	D85	* 87-020-399	LED,LN350GPH (VOLUME LEVEL) LED,LN350GPH (VOLUME LEVEL)						TRANSISTOR,2SD1275 TRANSISTOR,2SD1302S
D71		DIODE, ZENER RD-6.2EB	D87 D88		LED,LN350GPH (VOLUME LEVEL) LED,LN350GPH (VOLUME LEVEL)				MA1	N CIRCUIT PO	RD SECTION ===
D72 D73 D74	87-027-376	DIODE,1SR35-200 DIODE,1B4B41 DIODE,ZENER HZ4C2		* 87-020-399	LED,LN350GPH (VOLUME LEVEL) PUSH SW,SEA (POWER STANDBY/ON)				PCB-A	*	MAIN CIRCUIT BOARD
		PIN JACK,4P (PHONO)	SW15		TACT SW EVQ-QSKO4M (VOLUME-UP)				C92	* 87-018-131	CAP,CERA-SOL SS 1000P CAP,ELECT 220-25V BP
J2	+++	PIN JACK,4P (CD) PIN JACK 4P-14 (AUX)	SW16 SW17	87-031 - 771	TACT SW EVQ-QSKO4M (VOLUME-DOWN) TACT SW EVQ-QSKO4M (TAPE)						CAP,ELECT 56V-5600
J4	+++	PIN JACK 4P-14 (REC OUT)	SW18	87-031-771	TACT SW EVQ-QSK04M (PHONO)						CAP,ELECT 56V-8200 CAP,ELECT 56V-5600
J5 J6	81-739-630 +++	JACK, ASSY (PLAYER SYNC) JACK, ASSY (REC/PLAY)	SW19 SW20	87-031-771	TACT SW EVQ-QSKO4M (TUNER) TACT SW EVQ-QSKO4M (AUX)				C174	* 87-010-275	CAP,ELECT 56V-8200 CAP,CERA-SOL 0.01UF
J7 J8	+++ +++	JACK, ASSY (CONTROL) JACK, ASSY (TUNER)	SW21 VR15		TACT SW EVQ-QSK04M (CD) SLIDE VOLUME 100KB (40HZ)				C201	* 87-010-035	CAP,ELECT 2.2/50V
J9	+++	JACK, ASSY (CD SYNC)	VR16		SLIDE VOLUME 100KB (125HZ)				D25 D26	87-020-110	DIODE,1SS177 DIODE,1SS177
J10 J11	+++	JACK,ASSY (VIDEO SYNC) JACK,ASSY (OUTPUT)	VR17 VR18	87-021-898	SLIDE VOLUME 100KB (330HZ) SLIDE VOLUME 100KB (1KHZ)				D30		DIODE, ZENER 05Z-6.2L
J12		13P SOCKET (REMOTE CONTROL)	VR19		SLIDE VOLUME 100KB (2.5KHZ)				D31 D32	87-020-110	DIODE,1SS177 DIODE,1SS177
J13 SW1	81-739-640	JACK 6.3 (HP) (MIX MIC) PUSH SW 3 (REC OUT)	VR20 VR21		SLIDE VOLUME 100KB (6.3KHZ) SLIDE VOLUME 100KB (15KHZ)				D33 D34		DIODE,1SS177 DIODE,1SR35-200
SW2 SW5	+++	PUSH SW 3 (MUTE) PUSH SW 3 (DSL)	POW	FR CIRCUIT BOA	RD SECTION ===				D48 D49		DIODE,1SR35-200 DIODE,D5FB20
VR1 VR2		VOLUME 50KW (BALANCE) VOLUME 10KB (MIC VOLUME)	PCB-C		POWER CIRCUIT BOARD				D51 D52	87-020-400	DIODE,1SR35-200 DIODE,1SR35-200
VIV.Z	07-021-921	VOLUME TOND VMITC VOLUME?		* 87-019-110	SPARK KILLER 0.01 D FUSE T2.5A (E.Z ONLY)				D53		DIODE,1SS177
=== FROM	NT CIRCUIT BO	ARD SECTION ===	∆ J14	* 87-049-017	AC OUTLET (H,Ú ONLY)				D54 D55	87-020-110	DIODE,1SS177 DIODE,1S1555
PCB-B C141		FRONT CIRCUIT BOARD CAP,ELECT 2.2-50	△ J14	* 87-049-416	AC OUTLET (H,U ONLY) AC OUTLET (K ONLY)				D56		DIODE, ZENER HZ5C2
C142	* 87-015-696	CAP, ELECT 2.2-50 CAP, AL 0.68-25			AC OUTLET (K ONLY) AC OUTLET (E,Z ONLY)				D57 D58	87-020-110	DIODE, ZENER HZ12A1 DIODE, 1SS177
C146	* 87-015-431	CAP,AL 0.68-25	∆ J15	* +++	AC OUTLET (E,Z ONLY)				D59 D60	87-020-110	DIODE,1SS177 DIODE,1SS177 (EXCEPT H)
C156	* 87-018-040	CAP,CERA-SOL S 470P CAP,CERA-SOL S 470P							D61	87-020-110	DIODE,1SS177 (EXCEPT H)
		CAP,CERA-SOL S 220P		OCI I AMPONO					D62 D63	87-020-110	DIODE,1SS177 (EXCEPT H) DIODE,1SS177 (EXCEPT H)
C161 :	* 87-015-698	CAP,CERÁ-SOL S 220P CAP,ELECT 4.7-50		CELLANEOUS ===					D64		DIODE, ZENER HZ27-2 (EXCEPT H)
		CAP,ELECT 4.7-50 CAP,CERA-SOL S 100P	☆ ☆		AC CORD (H) (H ONLY) AC CORD (U) (U ONLY)				J1 J3	81 - 738-630 +++	JACK PLATE, ASSY (INPUT) JACK PLATE, ASSY (SPEAKERS A(L))

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
J4 J2 J5	+++ 87-049-360 * 81-738-631		<u></u> £\$11	87-031-897	PUSH SW,SEA (POWER STANDBY/ON)	<u> </u>	87-035-191	FUSE,T3.15A (E,K,Z ONLY)
L1		INDUCTOR 1UH	=== DR	RIVER-1 CIRCUIT	T BOARD SECTION ====	=== VOL	TAGE SELECTOR	CIRCUIT BOARD SECTION (H ONLY) ====
L2 <u>A</u> R139 AR140 'AR223	* 87-025-347 * 87-025-347		PCB-C C3 C7 C9	* 87-018-121	DRIVER-1 CIRCUIT BOARD CAP,ELECT BP 4.7-25V CAP,CERA-SOL SS 150P CAP,CERA-SOL SS 270P	PCB−G <u>A</u> <u>A</u> F1		VOLTAGE SELECTOR CIRCUIT BOARD 1P TERMINAL FUSE CLAMP FUSE, 7A
<u></u>	* 87-025-397 * 87-025-397	RES,NONFLAM 1W270 RES,NONFLAM 1K 2W RES,NONFLAM 1K 2W RES,FUSIBLE 1W-3.3	C13 C17 C19 C21	* 87-018-104 * 87-018-099	CAP,CERA-SOL SS 68P CAP,CERA-SOL SS 10P CAP,CERA-SOL 3.9P CAP,CERA-SOL SS 2.2P	<u>^</u> F2 <u>^</u> S12	87-031-685	FUSE,3.15A ROTARY SWITCH (VOLTAGE SELECTOR)
<u></u> 1.02 € £ £ £ £ £ £ £ £ £ £ £ £ £ £ £ £ £ £		RES,FUSIBLE 1W-3.3 RELAY G2R 24V-2	C25 C35		CAP,CERA-SOL 680P CAP,ELECT 0.1-50		* 87-034-578	= AC CORD,U (U ONLY)
RY2 S1	* 87-045-223 87-031-892	RELAY G4W 24V-2 SW SUL (AFBS(SPEAKER A))	C53 C59	* 87-018-106 * 87-018-123	CAP,CERA-SOL SS 15P CAP,CERA-SOL SS 220P	A A A	* 82-788-674 * 87-034-708	AC CORD,E50 (E,Z ONLY) AC CORD,K50B (K ONLY) AC CORD BUSHING,D (H,U ONLY)
\$5 \$6	+++	SW SUL (SPEAKERS A) SW SUL (SPEAKERS B)	D1 D3 D5 D7	87-020-110 87-027-469	DIODE,ZENER HZ16-2 DIODE,1SS177 DIODE,ZENER HZ16-2 DIODE,1SS177	<u>^</u> <u>^</u> T1 <u>^</u> T1	* 81-738-606 * 81-738-607	AC CORD BUSHING (E,K,Z ONLY) TRANSFORMER PT,H (H ONLY) TRANSFORMER PT,U (U ONLY)
	ONT CIRCUIT BO	ARD SECTION ===	D15	87-027-625	DIODE, ZENER 05Z-6.8U	<u>^</u> T1		TRANSFORMER PT,E (E,Z ONLY)
PCB-B C105 C106 C107	* 87-015-692 * 87-015-692	FRONT CIRCUIT BOARD CAP,ELECT 0.22-50 CAP,ELECT 0.22-50 CAP,ELECT 2.2-50	D17 <u></u> AR43 SFR1		DIODE,ZENER 05Z-6.8U RES,FUSIBLE 1/4W-330 SFR 100	<u>Л</u> т1	* 81-738-609	TRANSFORMER PT,K (K ONLY)
C108 C111		CAP,ELECT 0.47-50V CAP,ELECT 2.2-50	=== DR	IVER-2 CIRCUIT	BOARD SECTION ===		mbination Cir	
C112 C115	* 87-015-694	CAP,ELECT 0.47-50V CAP,ELECT 2.2-50	PCB-D C4 D2	* * 87-015-380 87-027-469	DRIVER-2 CIRCUIT BAORD CAP,ELECT BP 4.7-25V DIODE,ZENER HZ16-2	asterisk (*) are supplied	cal parts list which are indicated by an as one single combined circuit board, be supplied separately. If this becomes
C116 C119		CAP,ELECT 0.47-50V CAP,ELECT 2.2-50	D4		DIODE 188177	necessary	please order the	entire circuit board.
		CAP,ELECT 0.47-50V CAP,ELECT 2.2-50	D6 D8	87-020-110	DIODE, ZENER HZ16-2 DIODE, 1SS177	[GX-12	0]	
C124 C125		CAP,ELECT 0.47-50V CAP,CERA-SOL 680P	C8 C10		CAP,CERA-SOL SS 150P CAP,CERA-SOL SS 270P		ition circuit bo 81-739-611	pard 81-729-610
C126 C127	* 87-018-129	CAP, CERA-SOL 680P CAP, ELECT 2.2-50	C14 C18		CAP,CERA-SOL SS 68P CAP,CERA-SOL SS 10P		81-739-612	
C129	* 87-018-124	CAP,ELECT 0.47-50V CAP,CERA-SOL SS 270P	C20 C22	* 87-018-099	CAP,CERA-SOL 3.9P CAP,CERA-SOL SS 2.2P	[BX-120	0] ation circuit bo	pard 81-738-610
C130 C131		CAP,CERA-SOL SS 270P CAP,ELECT 2.2-50	C26 C36 C54	* 87-015-691	CAP,CERA-SOL 680P CAP,ELECT 0.1-50 CAP,CERA-SOL SS 15P	PCB-A	81-738-611 81-738-612	31.4 01730-010
C132 C133		CAP,ELECT 0.47-50V CAP,ELECT 2.2-50	C60	* 87-018-103	CAP, CERA-SOL SS 220P	PCB-C	81-738-613	
C134 C135		CAP,ELECT 0.1-50 CAP,ELECT 0.47-50V	D16 D18	87-027-625	DIODE,ZENER,05Z-6.8U DIODE,ZENER 05Z-6.8U		81-738-614 81-738-616 (£	EXCEPT H)
	* 87-015-682	CAP,ELECT 22-35V CAP,ELECT 22-16 CAP,CERA-SOL SS 470P	<u>↑</u> R44 SFR2	* 87-029-112 * 87-021-856	RES,FUSIBLE 1/4W-330 SFR 100		81-738-617 (E 81-738-618 (F	·
C146	* 87-018-130	CAP,CERA-SOL 820P	=== FU	SE CIRCUIT BOA	RD SECTION ===			•
C147 C151 D35 D36	* 87-015-689 87-020-110	CAP,ELECT 0.1-50 CAP,ELECT 35-10V DIODE,1SS177 DIODE,1SS177	PCB-E ∆ ∆F1	87-033-147	FUSE CIRCUIT BOARD (EXCEPT H) 1P TERMINAL (EXCEPT H) FUSE CLAMP (EXCEPT H) FUSE,5A (U ONLY)			
D37 D38 D39	87-020-110 87-020-110	DIODE,1SS177 DIODE,1SS177 DIODE,1SS177	<u></u> ∱F1		FUSE,T2A (E,K,Z ONLY)			
D40 D41		DIODE,1SS177 DIODE,1SS177		SE SUB CIRCUIT	BOARD SECTION ===			
D42 D43 D45	87-020-110 * 87-020-393	DIODE,135177 DIODE,155177 LED,TLR-206RPH (AFBS(SPEAKER A)) DIODE,ZENER HZ12A1	PCB-F D65 D66 D67	87-027-185 87-027-185	FUSE SUB CIRCUIT BOARD (EXCEPT H) DIODE,30D2FA (EXCEPT H) DIODE,30D2FA (EXCEPT H) DIODE,30D2FA (EXCEPT H)			
D46 D47 FL <u>↑</u> R229	87-020-110 * 81-738-640	DIODE 1SS177 DIODE,1SS177 FL,CP1057GR RES,FUSIBLE 120 1/4W	D68 <u>↑</u> F3 ↑F3 ↑F4	87-035-303 87-035-191	D10DE,30D2FA (EXCEPT H) FUSE,4A (U ONLY) FUSE,T3.15A (E,K,Z ONLY) FUSE,4A (U ONLY)			

C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

- 1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
- 2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10
- 3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
- 4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (4)).

△ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

8

Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
(SPEAKERS A(R))	<u></u> £\$11	87-031-897	PUSH SW, SEA (POWER STANDBY/ON)	<u></u> ∱F4	87-035-191	FUSE,T3.15A (E,K,Z ONLY)
(SPEAKERS B)	=== DRI	IVER-1 CIRCUIT	r BOARD SECTION ===	=== VO	LTAGE SELECTOR	R CIRCUIT BOARD SECTION (H ONLY) ===
`	PCB-C	*	DRIVER-1 CIRCUIT BOARD	PCB-G	*	VOLTAGE SELECTOR CIRCUIT BOARD
,	C3 C7		CAP,ELECT BP 4.7-25V CAP,CERA-SOL SS 150P	A	82-304-743 87-033-147	1P TERMINAL FUSE CLAMP
70	C9		CAP, CERA-SOL SS 270P	<u></u> ∱F1	87-035-312	
70	C13	* 87-018-117	CAP,CERA-SOL SS 68P	 £F2	87-035-256	FUSE,3.15A
2W 2W	C17 C19		CAP, CERA-SOL SS 10P	∆ S12	87-031-685	ROTARY SWITCH (VOLTAGE SELECTOR)
3.3	C21		CAP,CERA-SOL 3.9P CAP,CERA-SOL SS 2.2P			
3.3	C25	* 87_018_120	CAP,CERA-SOL 680P	=== MI:	SCELLANEOUS ==	:=
	C35	* 87-015-691	CAP,ELECT 0.1-50	Æ	* 87-034-578	AC CORD,U (U ONLY)
EAKER A))	C53		CAP, CERA-SOL SS 15P	À		AC CORD, ESO (E, Z ONLY)
	C59		CAP,CERA-SOL SS 220P	<u>^</u> ^ _^	* 87-034-706 * 87-085-184	AC CORD,K50B (K ONLY) AC CORD BUSHING,D (H,U ONLY)
5 A) 5 B)	D1		DIODE, ZENER HZ16-2		+ 07 005 105	
	D3 D5		DIODE,188177 DIODE,ZENER HZ16-2	<u>^</u> <u>^</u> T1		AC CORD BUSHING (E,K,Z ONLY) TRANSFORMER PT,H (H ONLY)
	D7 ·	87-020 - 110	DIODE, 1SS177	<u></u> ∱T1	* 81–738–607	TRANSFORMER PT,U (U ONLY)
	015	87-027-625	DIODE,ZENER 05Z-6.8U	<u> </u>	* 81-738-608	TRANSFORMER PT,E (E,Z ONLY)
DARD 50	D17	87-027-625	DIODE, ZENER 05Z-6.8U	<u> </u>	* 81-738-609	TRANSFORMER PT,K (K ONLY)
50 50	<u>/</u> 1.R43 SFR1	* 87-029-112 * 87-021-856	RES,FUSIBLE 1/4W-330 SFR 100			
)						
50V	=== DR!	VER-2 CIRCUIT	BOARD SECTION ===	Note: Co	ombination Ci	rcuit Board
D 50V	DOD D		DRIVER 2 CIRCUIT BAODS	-		cal parts list which are indicated by an
	PCB-D C4	* 87-015-380	DRIVER-2 CIRCUIT BAORD CAP,ELECT BP 4.7-25V	asterisk ((*) are supplied	as one single combined circuit board.
50V	D2	87-027-469	DIODE, ZENER HZ16-2	Therefore	they will not	be supplied separately. If this becomes
)	D4	87-020-110	DIODE 1SS177	necessary	,please Order the	entire circuit board.
50 V	D6		DIODE, ZENER HZ16-2	[GX-12	201	
,	D8 C8		DIODE,1SS177 CAP,CERA-SOL SS 150P	_	ation circuit b	pard 81-729-610
50V	C10		CAP, CERA-SOL SS 270P		81-739-611	Salu 01-729-010
)P	C14	* 87-018-117	CAP,CERA-SOL SS 68P		81-739-612	
)	C18	* 87-018-104	CAP, CERA-SOL SS 10P			
50V	C20 C22		CAP,CERA-SOL 3.9P CAP,CERA-SOL SS 2.2P	[BX-12	0]	
270P			•	Combin	ation circuit b	oard 81-738-610
270P)			CAP,CERA-SOL 680P CAP,ELECT 0.1-50	PCB-A	81-738-611	
eou.	C54	* 87-018-106	CAP, CERA-SOL SS 15P	PCB-B	81-738-612	
50V)	C60	* 87-018-123	CAP,CERA-SOL SS 220P	PCB-C	81-738-613	
)	D16		DIODE, ZENER, 05Z-6.8U		81-738-614	
50V	D18 <u></u>		DIODE,ZENER 05Z-6.8U RES.FUSIBLE 1/4W-330		81-738-616 (
1		* 87-021-856	·		81-738-617 (
470P				PCB-G	81-738-618 (HONLY)
P	=== FUS	E CIRCUIT BOA	RD SECTION ===			•
)	PCB-E	*	FUSE CIRCUIT BOARD (EXCEPT H)			
!			1P TERMINAL (EXCEPT H)			
	Æ ÆF1		FUSE CLAMP (EXCEPT H) FUSE,5A (U ONLY)			
	<u> </u>	87-035-190	FUSE,T2A (E,K,Z ONLY)			
	=== FUS	E SUB CIRCUIT	BOARD SECTION ===			
	PCB-F	*	FUSE SUB CIRCUIT BOARD (EXCEPT H)			
(AFBS(SPEAKER A))	D65		DIODE,30D2FA (EXCEPT H)			
A1	D66 D67		DIODE,30D2FA (EXCEPT H) DIODE,30D2FA (EXCEPT H)			
	D68 <u>∧</u> F3		DIODE,30D2FA (EXCEPT H) FUSE,4A (U ONLY)			
1/4W	_∱F3	87-035-191	FUSE,T3.15A (E,K,Z ONLY)			
1/78	∆ F4	87-035-303	FUSE,4A (U ONLY)			

C-MOS IC handling precaution

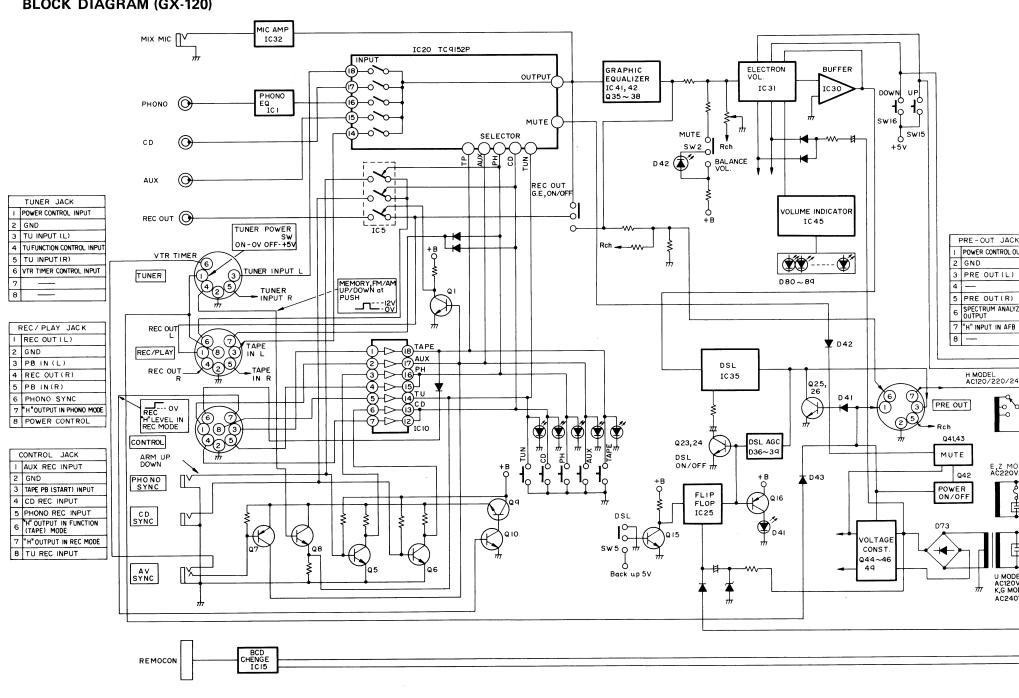
The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to follow-

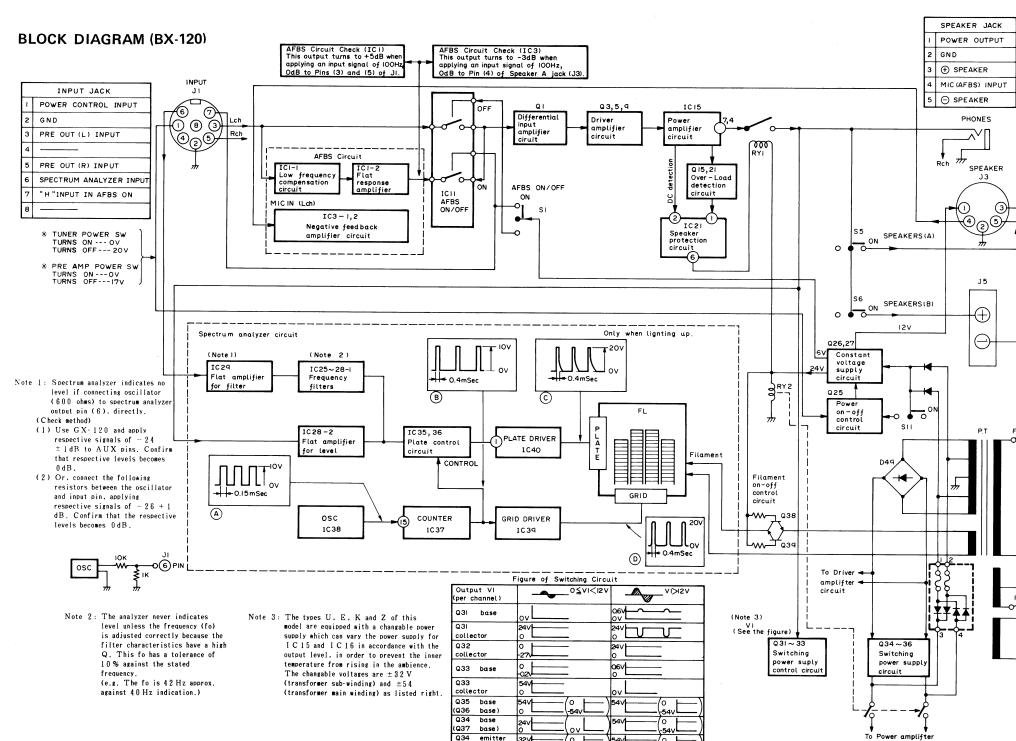
- 1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and
- 2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
- 3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
- 4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

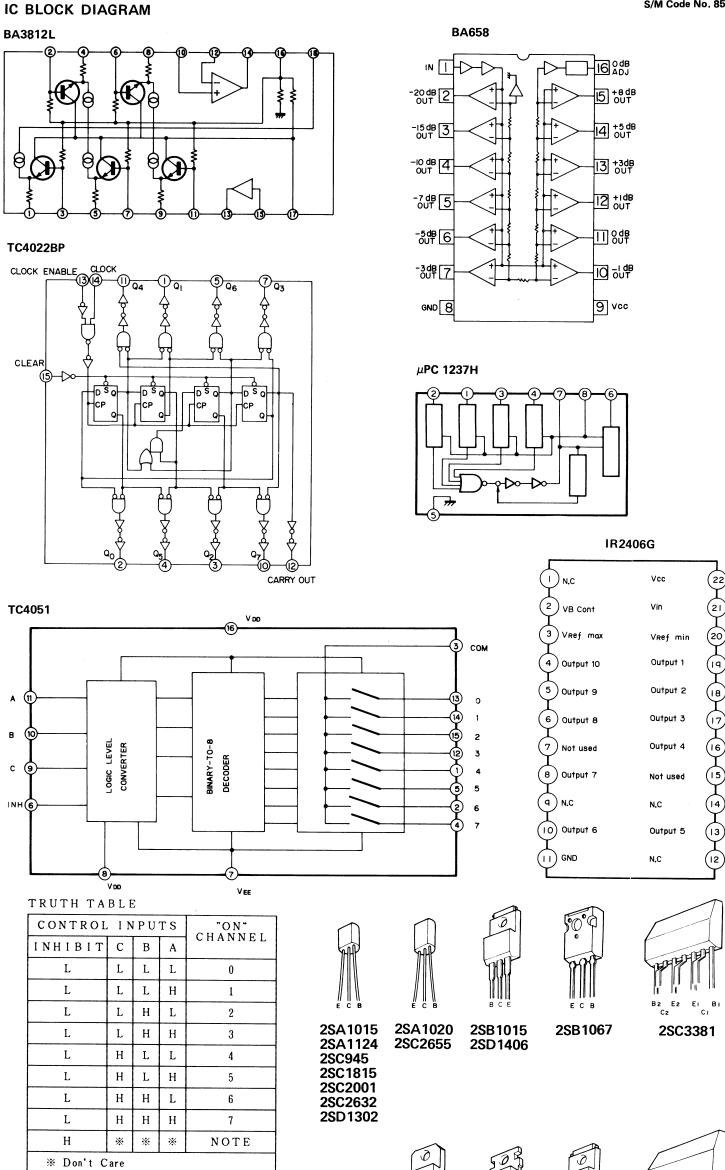
⚠ Safety component symbol

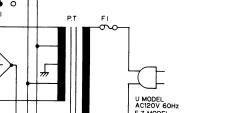
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.











PRE-OUT JACK

PRE OUT(L)

5 PRE OUT(R)

PRE OUT

Q41,43 MUTE

042

SPEAKER JACK

POWER OUTPUT

MIC (AFBS) INPUT

PHONES

@@9

 \oplus

AKERS (A)

GND SPEAKER

5 SPEAKER

D73

+

SPECTRUM ANALYZER 7 "H" INPUT IN AFB ON

H MODEL AC120/220/240V,50/60Hz

申

E,Z MODEL AC220V,50/60Hz

U MODEL AC120V,60Hz K,G MODEL AC240V,50/60Hz

POWER CONTROL OUTPUT GND



- 1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
- 2) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%. Capacitors with no designation have a dielectric strength
- of less than 50WV. The only capacitor tolerance indicated are $\pm 5\%$ (J)
- and ±10% (K). 5) Ceramic capacitor symbols:
 - High dielectric constant system (YY)
 - ── High dielectric constant system (YW, YP, YZ)
 - → Semiconductor ceramic
- 6) Explanation of symbols
 - Mylar capacitor
 - Aluminum solid capacitor
 - P Polypropylene film capacitor BP Bi-polarized capacitor
 - Low-leakage capacitor
 - Tantalum capacitor Styrol capacitor



2SD688

2SD718

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.

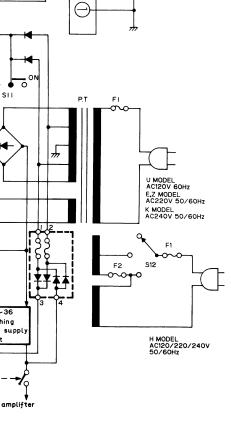
2SD880

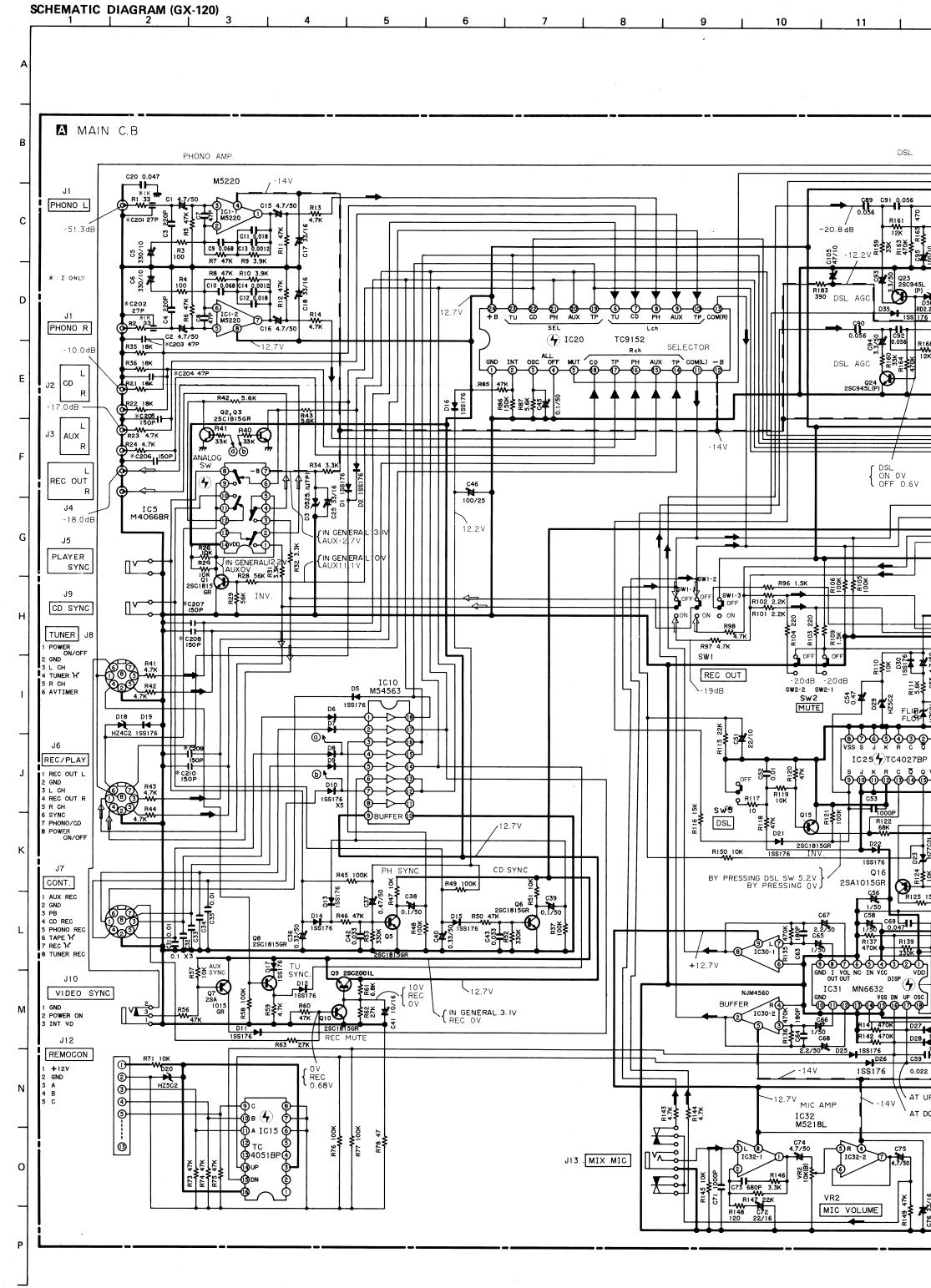
2SD1275

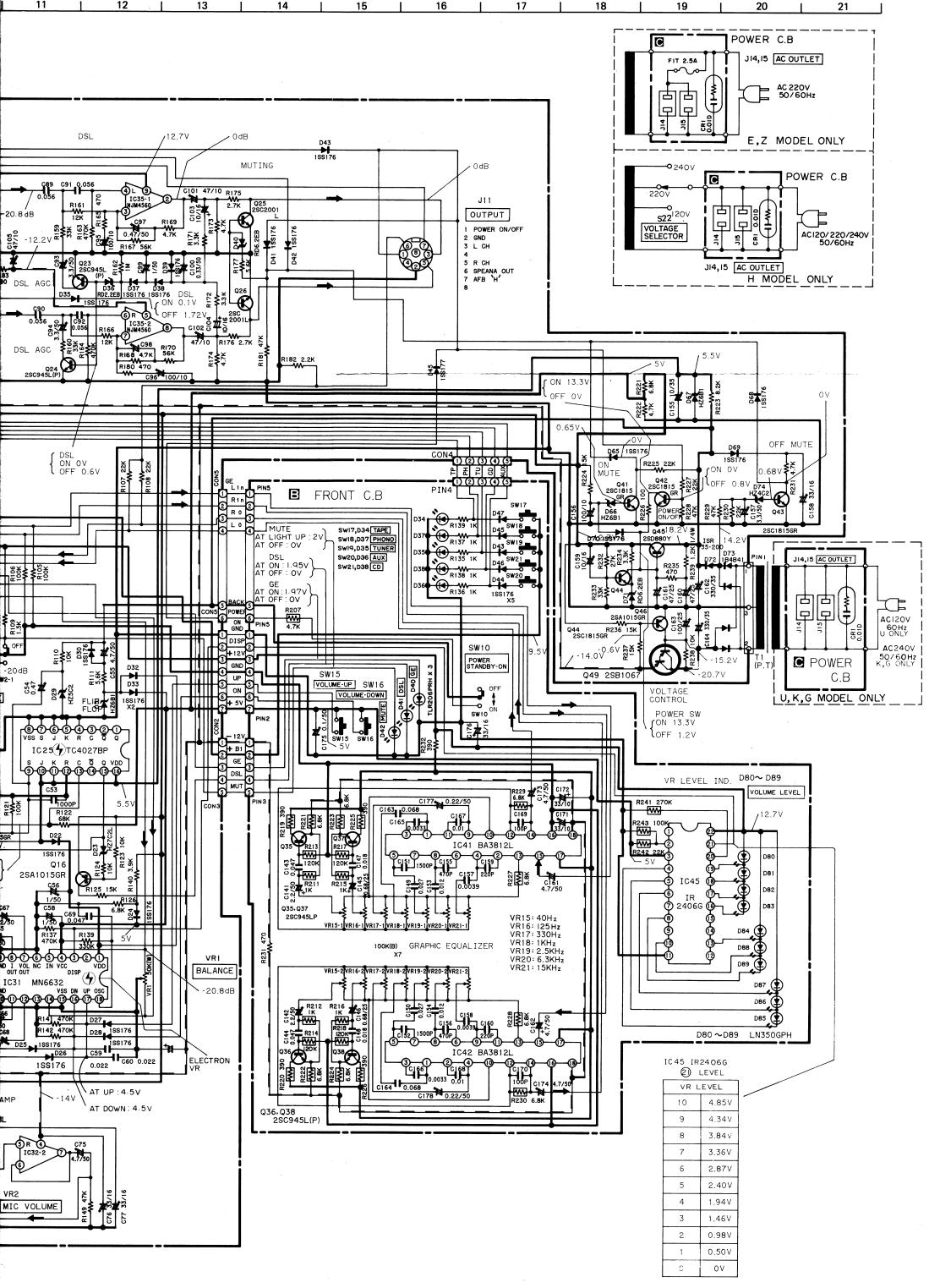
2SK389

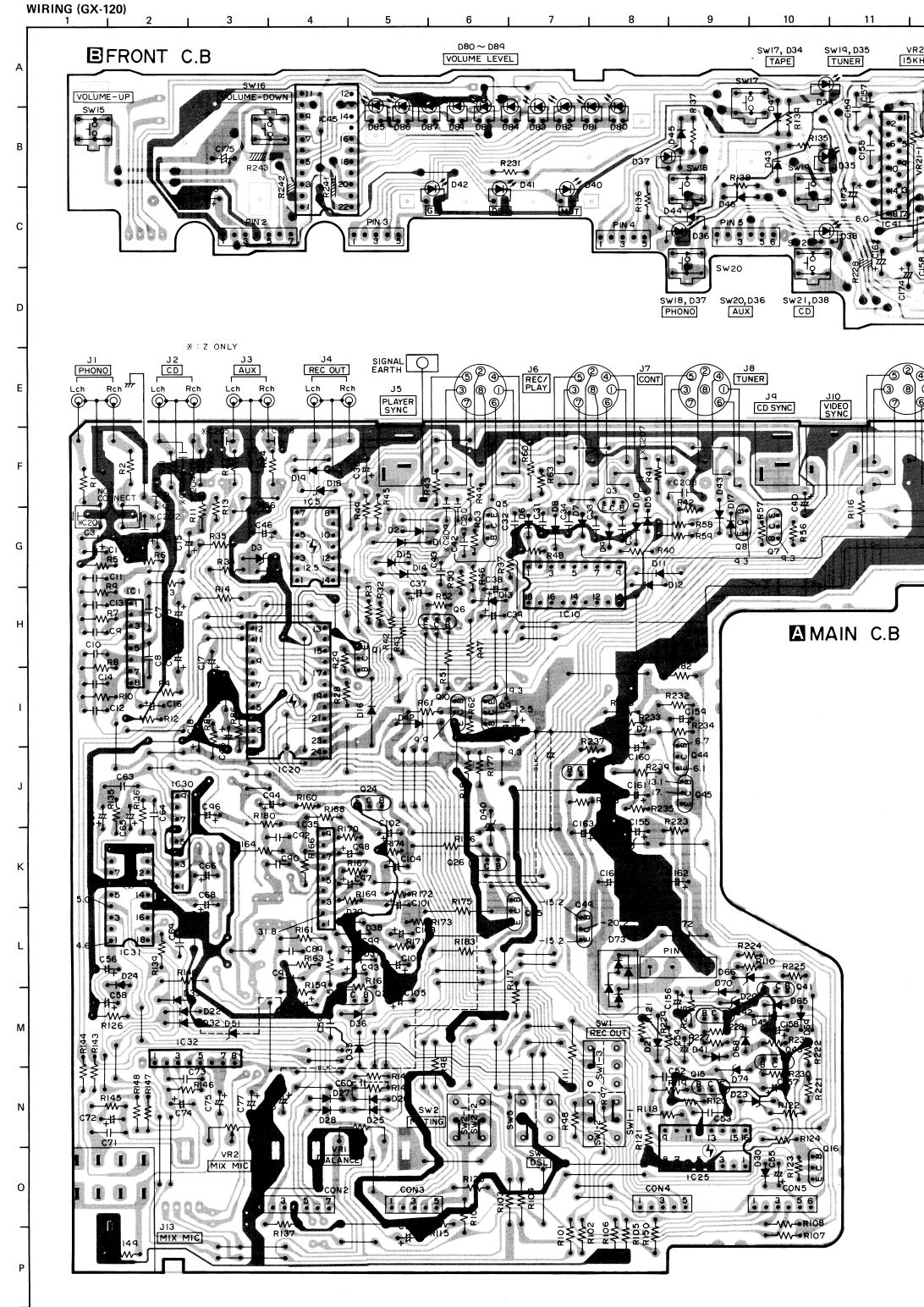
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

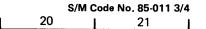
This schematic diagram is subject to change without notice in the interests of improved performance.

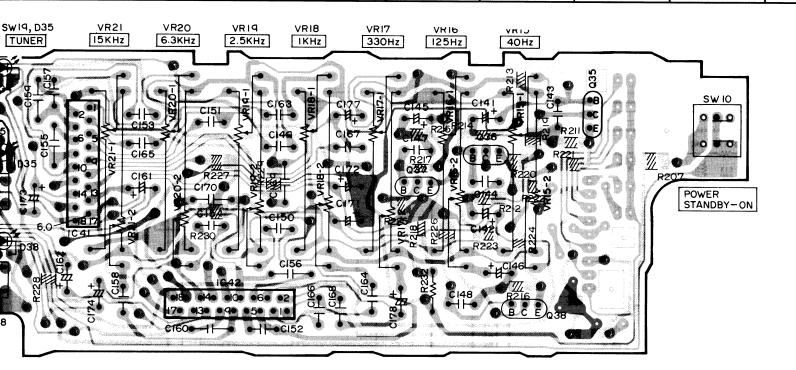


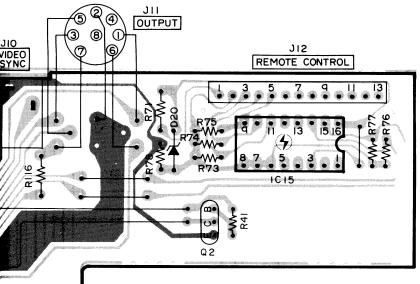










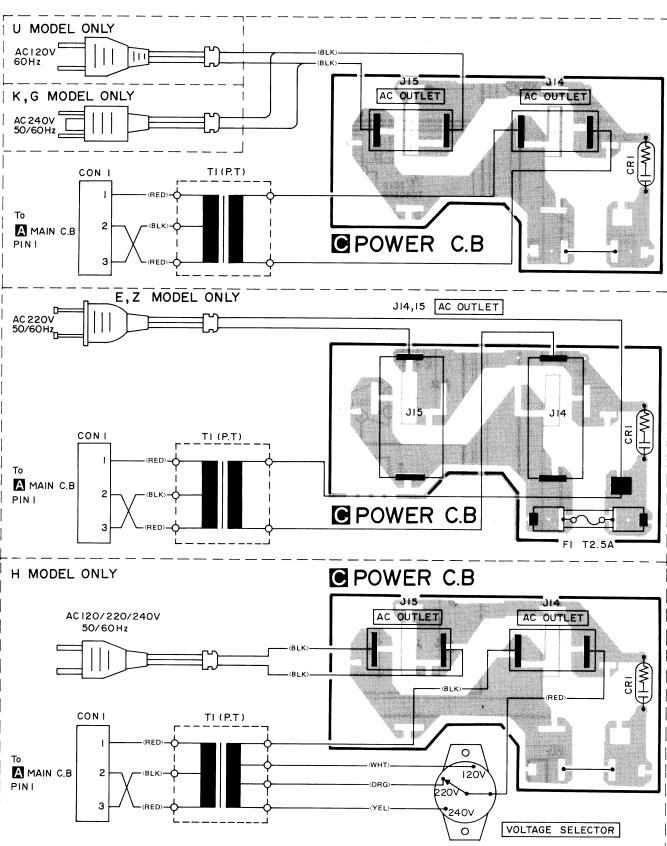


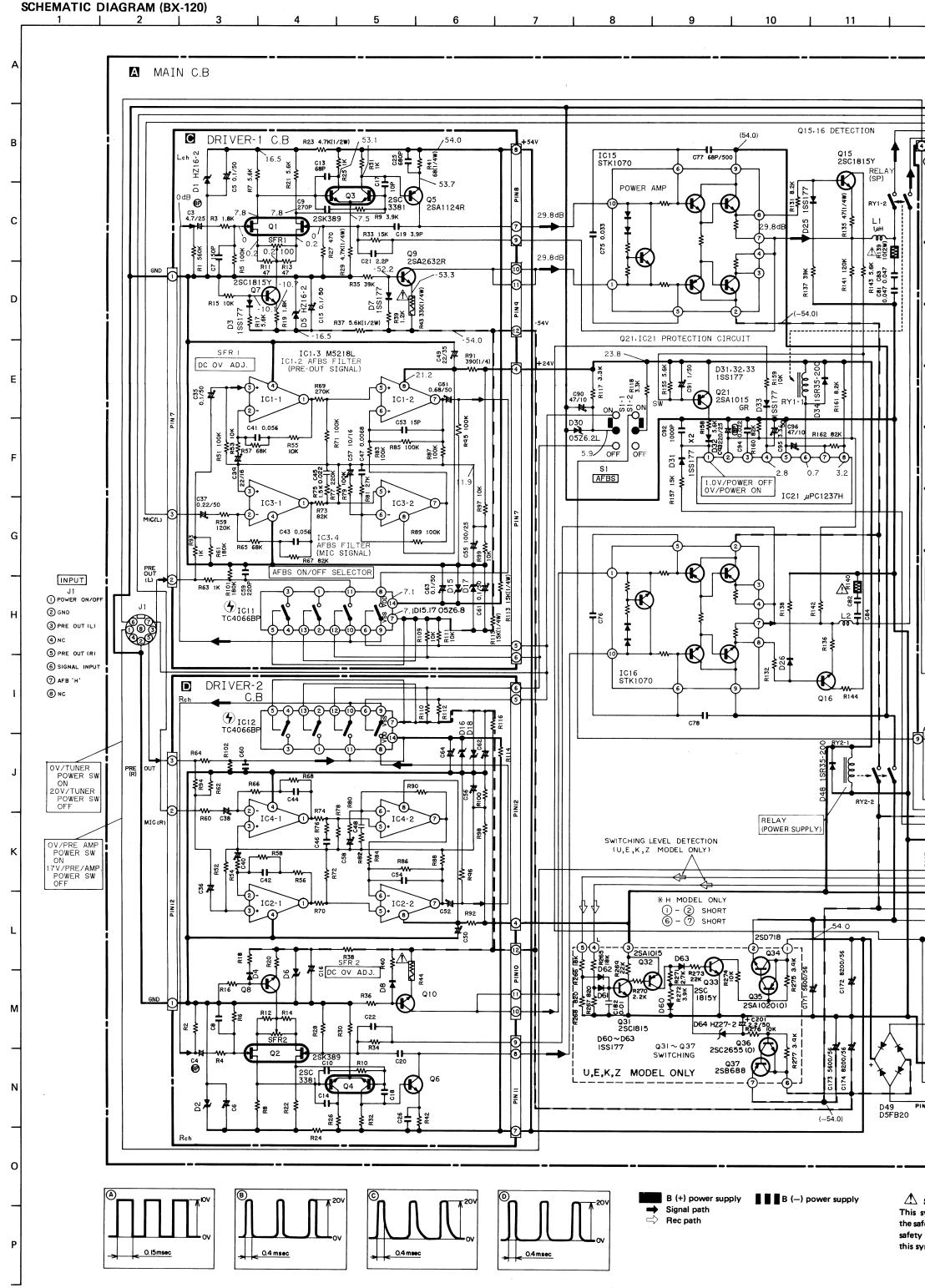
13

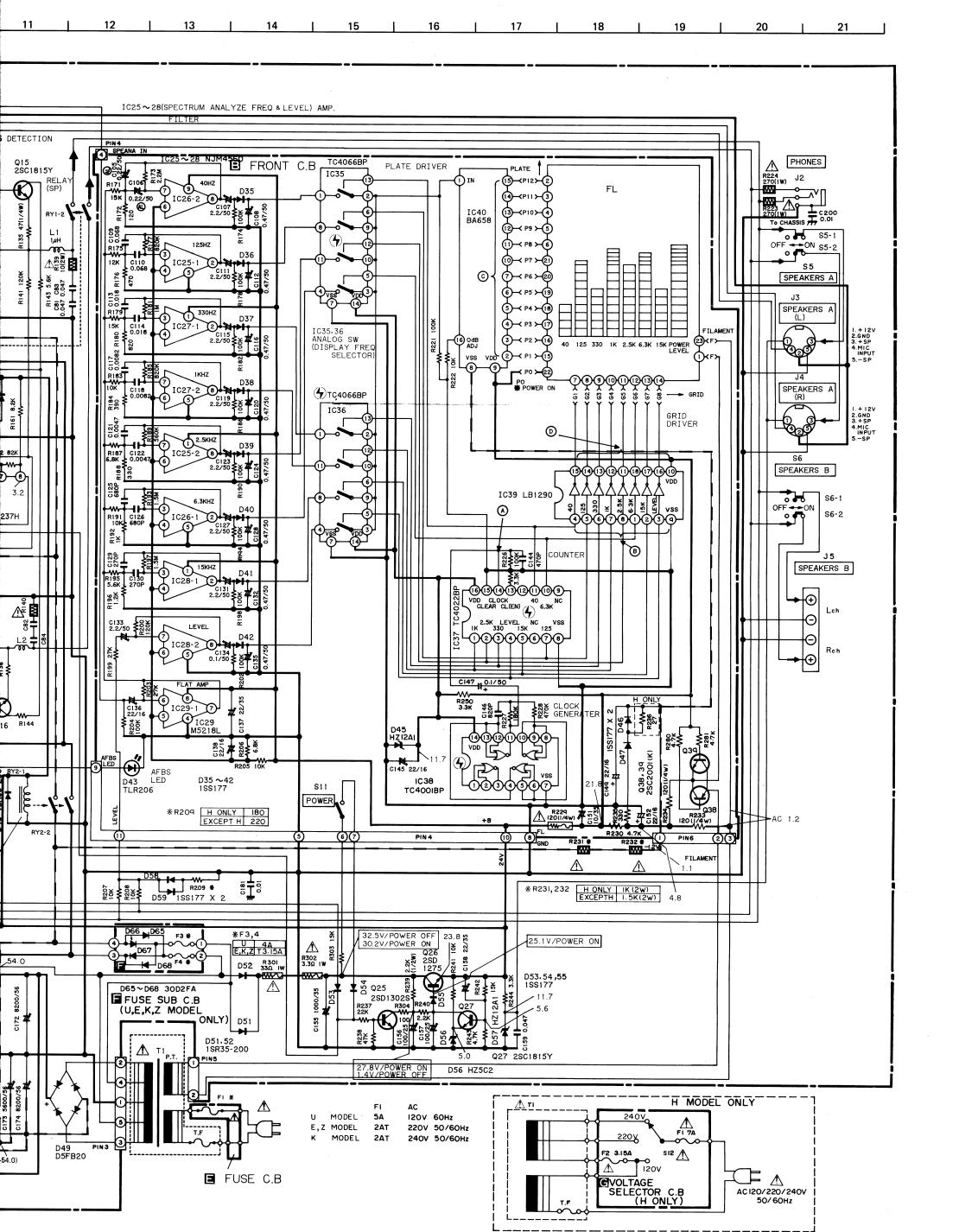
NOTES (1) Earth pattern Component side pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

AIN C.B



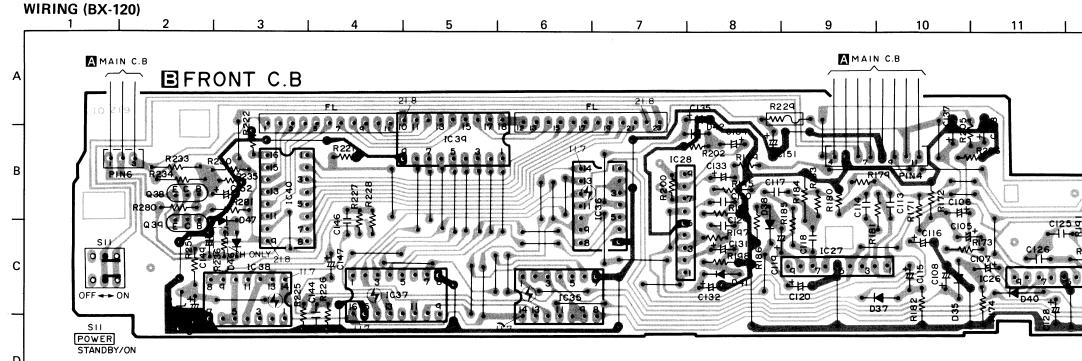


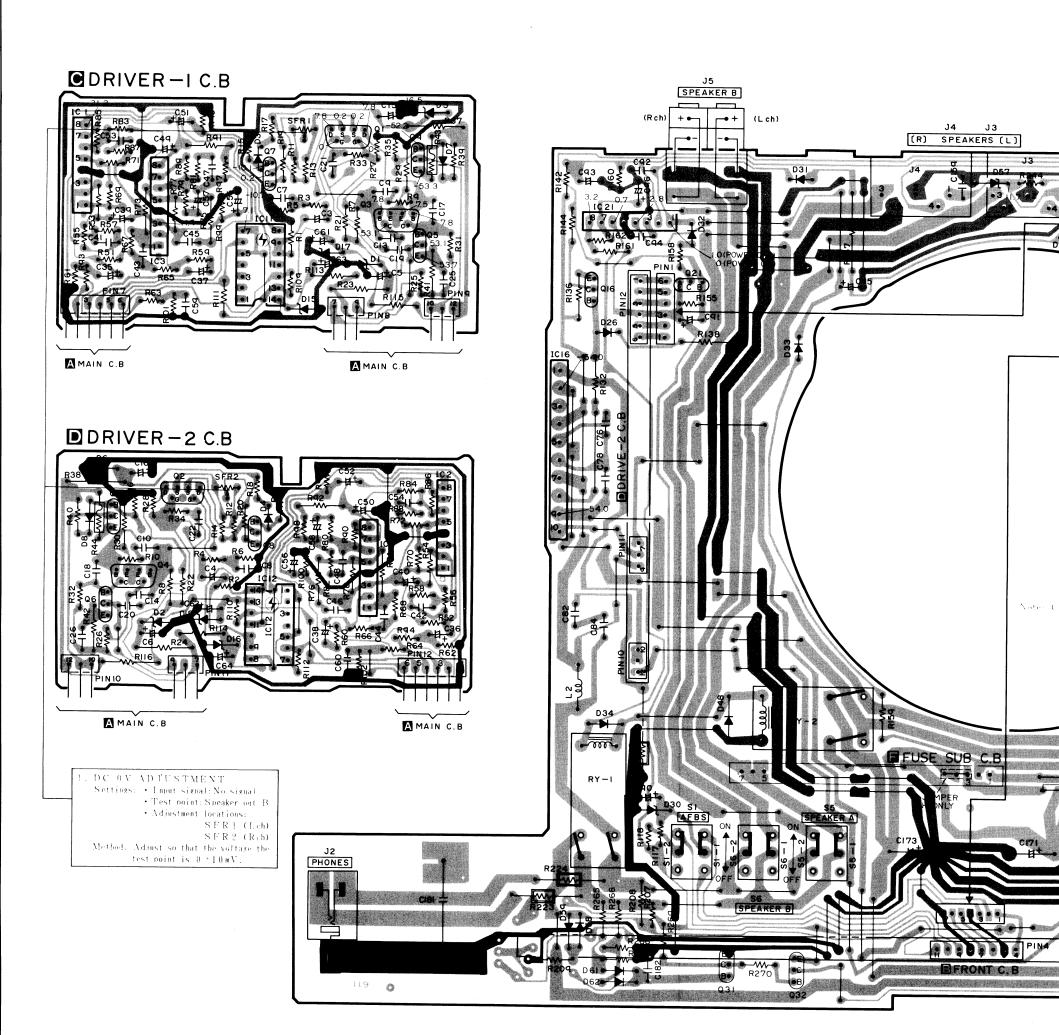


Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

r supply





NOTES (1) Earth pattern Others pattern

Ν

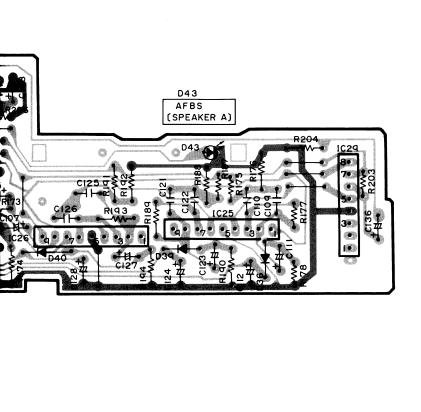
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Ρ

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

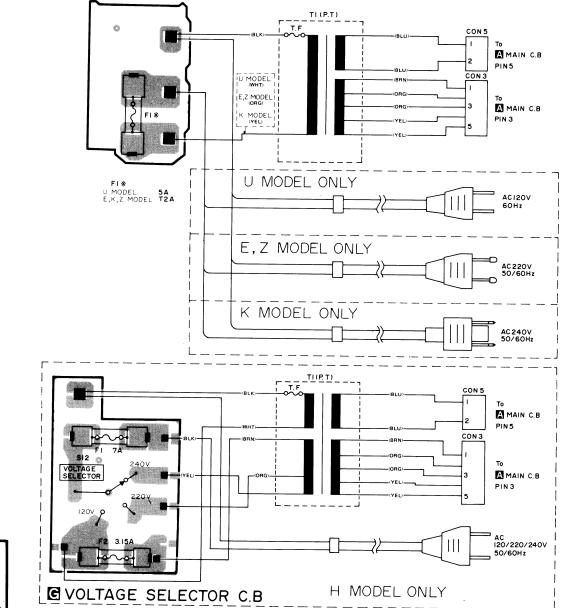
The ICs on the electrical parts which are indicated by

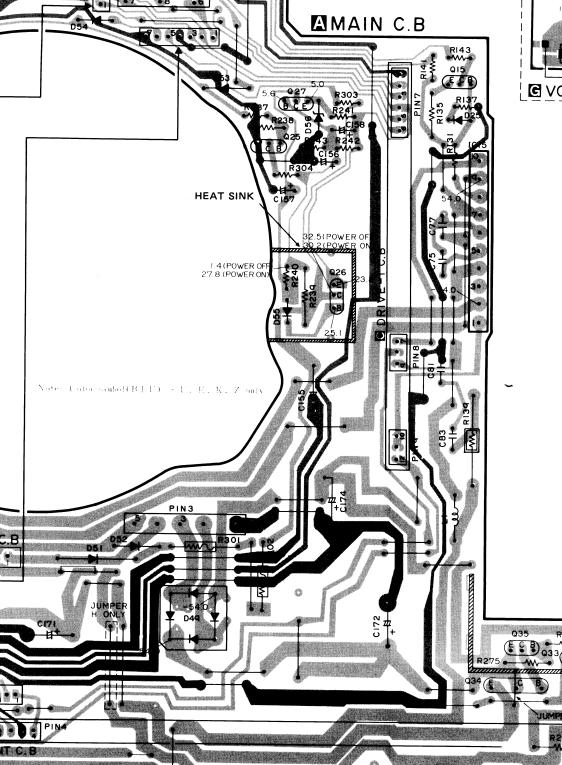
FUSE C.B



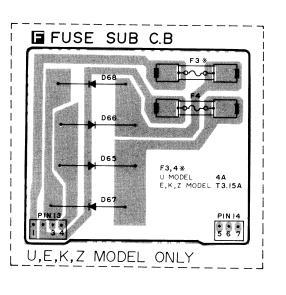
To PREAMP INPUT

PEAKERS (L)





0/20(TUNER POWER SW ON/OFF O/17(PREAMP POWER SW ON/OFF

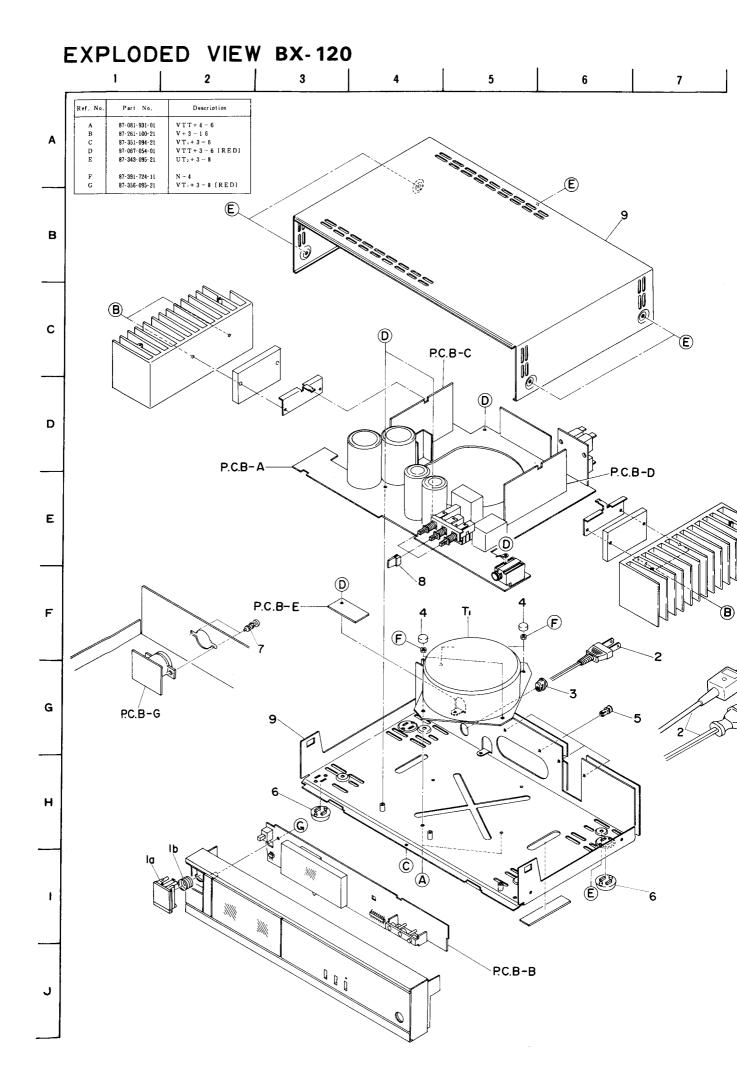


HEAT SINK

which are indicated by an C-MOS IC symbol mark (${\cal G}$).

* * * * * * * * * * * * * *	* * * * * * *	MEMO☆☆☆☆	* * * * * * * * *	*
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		····		
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<u> </u>				

EXPLODED VIEW GX-120 1 2 3 5 6 7 Ref. No. Part No. Description 87-067-054-01 87-351-094-21 87-351-095-21 87-348-095-01 87-081-481-01 87-356-095-21 V + 3 - 6 VT + 3 - 6 VT + 3 - 8 UT + 3 - 8 VTT + 3 - 8 VTT + 3 - 5 VT + 3 - 8 [RED] D (D) 8 В С **D** D 3 P.C.B-A P.C.B-C E F P.C.B-C P.C.B-C 9 G (C) P.C.B-B Н SW22 Id ĺb B



PARTS LIST

MECHANICAL PARTS LIST

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★ 81-739-028	FRONT CABINET UB Ass'y	*	1	
	l a	★ 81-740-007	PLATE G		1	
	1 b	★ 81-740-020	KNOB G		7	
	1 c	★ 81-740-021	SHEET G		7	
	1 d	★ 81-740-050	PUSH-KEY POWER B Ass'y		1	
	1 e	★ 81-740-208	C-SPRING, POWER		1	
	1 f	★ 81-740-211	T-SPRING, A		1	
	1 g	★ 81-740-212	T-SPRING, B		1	
ļ	2	★ 87-055-057	FOOT B		4	
	3	★ 87-034-992	AC POWER CORD (H only)		1	
	:	★ 87-034-578	AC POWER CORD (U only)		1	
		★ 82-788-674	AC POWER CORD (E, Z only)		1	
		★ 87-034-708	AC POWER CORD (K only)		1	
	4	★ 87-085-184	CORD BUSHING (H, U only)		1	
		★ 87-085-185	CORD BUSHING (E, K, Z only)		1	
	5	★ 82-192-040	KNOB, B	F X-30	2	
	6	★ 82-798-023	PUSH-BUTTON, MUT	MX-90	3	
	7	★ 87-085-102	NYLON RIVET 3.5-5.5		3	
	8	★ 81-735-056	STEEL CABINET TB		1	
1	9	★ 87-085-090	NYLON RIVET $3-6.5$ (H only)		2	

PARTS LIST

MECHANICAL PARTS LIST

● ※ mark in this part list stows exclusive part. ● ★-mark means less required items and availabilities may be limited.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★ 81-738-028	FRONT CABINET UB Ass'y	*	1	
	l a	★ 81-740-050	PUSH-KEY POWER B Ass'y		1	
	16	★ 81-740-208	C-SPRING, POWER		1	
	2	★ 87-034-992	AC POWER CORD (H only)		1	
		★ 87-034-578	AC POWER CORD (U only)		1	
		★ 82-788-674	AC POWER CORD (E, Z only)		1	
		★ 87-034-708	AC POWER CORD (K only)		1	
	3	★ 87-085-184	CORD BUSHING (H, U only)		1	
		★ 87-085-185	CORD BUSHING (E, K, Z only)		1	
	4	★ 82-781-206	PLATE NUT	SA-P80	2	
	5	★ 87-085-102	NYLON RIVET 3.5-5.5		4	
	6	★ 87-055-057	FOOT B		4	
	7	★ 87-085-090	NYLON RIVET 3-6.5 (H only)		2	
	8	★ 82-798-023	PUSH-BUTTON, MUT	MX-90	3	
ļ	9	★ 81-738-035	STEEL CABINET PB	*	1	

■ ACCESSORIES/PACKAGE LIST

GX-120

Part No. changed to			Description	Common Modei	Q'ty	
	1	81-739-904	INSTRUCTION BOOKLET	*	1	

BX-120

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
·	1	★ 81-738-904	INSTRUCTION BOOKLET	*	I	